

TOP SECRET

OUT 51533

24 JUL 1963

1963 JUL 232317Z

TOP SECRET 232256Z

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Grace (25X1)

Declassification Review by
NGA/DoD

1. A COMPARISON OF THE FOURTH GENERATION POSITIVE TO THE SECOND GENERATION POSITIVE WAS MADE BY [] PERSONNEL ON NUMEROUS PASSES, COMPARING TARGETS RANGING FROM HIGH TO LOW CONTRAST. A COMPARISON OF HORIZON CAMERA IMAGERY WAS ALSO MADE TO DETERMINE THE SHARPNESS OF THE HORIZON TRACE.

2. FOLLOWING ARE EXAMPLES OF THE TARGETS COMPARED.

A. TARGETS WITHIN PANORAMIC FORMAT:

(1) PASS D 52 FWD, FRAME 78 - AIRFIELD

AIRCRAFT PARKED ON THE AIRFIELD APPEAR WELL DEFINED AND NO APPARENT QUALITY DIFFERENCE IS NOTED EXCEPT FOR SLIGHT GRAININESS IN THE FOURTH GENERATION POSITIVE UNDER 7-TIME MAGNIFICATION. USING 20-TIME MAGNIFICATION, THE GRAININESS IN THE FOURTH GENERATION POSITIVE BECOMES VERY APPARENT, AND THE IMAGE QUALITY IS AFFECTED. THE DISTANCE BETWEEN WING TIPS OF THE PARKED AIRCRAFT IS VERY DIFFICULT TO DETERMINE ON THE FOURTH GENERATION POSITIVE USING THIS MAGNIFICATION.

(2) PASS D 55 FWD, FRAME 154 - SHIPPING

THE FOURTH GENERATION POSITIVE LOSES DETAIL AND IS NOT AS CRISP, ESPECIALLY UNDER 20-TIME MAGNIFICATION.

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Excluded from automatic
downgrading and
declassification

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(3) PASS D 55 FWD, FRAME 166 - CITY ALONG RIVER

THE FOURTH GENERATION POSITIVE APPEARS SLIGHTLY HIGHER IN CONTRAST BUT IS GRAINY AND LOSES DETAIL ABOVE 7-TIME MAGNIFICATION.

B. HORIZON CAMERAS:

(1) PASS A 44 FWD, FRAME 55 - PORT AND STARBOARD HORIZON CAMERAS

HORIZON CAMERA IMAGERY IS VERY POOR ON FOURTH GENERATION POSITIVE, LACKING IN CONTRAST AND DETAIL. THE HORIZON TRACE OF THE FOURTH GENERATION POSITIVE IS NOT NEARLY AS WELL DEFINED AS THE SECOND GENERATION POSITIVE.

(2) PASS D 25 FWD, FRAME 3 - STARBOARD HORIZON CAMERA

THE FORMAT OF HORIZON CAMERA CANNOT BE DISTINGUISHED ON THE FOURTH GENERATION POSITIVE AND THE FORMAT ON THE SECOND GENERATION IS NOT WELL DEFINED BUT CAN BE DISTINGUISHED.

3. CONCLUSIONS:

THE FOURTH GENERATION POSITIVE, THOUGH HAVING A GENERAL APPEARANCE OF SLIGHTLY HIGHER CONTRAST, DOES NOT PRODUCE IMAGED QUALITY COMPARABLE TO THE SECOND GENERATION POSITIVE. ABOVE 7-TIME MAGNIFICATION, GRAININESS BECOMES VERY APPARENT OF THE FOURTH GENERATION POSITIVE, CAUSING LOSS OF DETAIL WHEREAS THE SECOND GENERATION POSITIVES SHOW LITTLE LOSS OF DETAIL AT

MAGNIFICATIONS MUCH GREATER THAN 7 TIMES. USE OF MAGNIFICATIONS ABOVE 7 TIMES IS ESSENTIAL IN PI WORK AND MEASUREMENT ON THIS TYPE OF PHOTOGRAPHY, BECAUSE OF THE SCALE FACTOR. THE FOURTH GENERATION POSITIVE COULD POSSIBLY BE USED IN RAPID SCANNING OR PLOTTING, BUT THE LOSS OF DETAIL WOULD SERIOUSLY HAMPER DETAILED PI WORK, ESPECIALLY MEASUREMENT.

T O P S E C R E T

END OF MESSAGE

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